NOTE: Special Weather summaries are provided by state climatologists or other qualified agencies. Specific values in this summary may be based on preliminary and/or supplementary data. Hence, some information in the narrative may differ from the final official values that appear on the data pages. These summaries are not included in the depository library copies of the CD bulletin.

N O R T H C A R O L I N A ~ M A R C H 1 9 9 3

SPECIAL WEATHER SUMMARY

National Climatic Data Center
Federal Building
37 Battery Park Avenue
Asheville, NC 28801-2733

During the second week of March 1993, weather forecast models detailed the formation of a winter storm of historical proportions. The storm developed on a stationary front draped across the northern Gulf of Mexico. By 6 a.m. Local Standard Time of Friday March 12th, a low pressure system, with a minimum central pressure lower than 29.50", had formed southeast of Corpus Christi, Texas. This spread rain northward along the Gulf Coast with some sleet falling on the northern edge of the precipitation shield.

The system began moving northeast, strengthening rapidly as it moved. Snow began falling across the mountains of western North Carolina by early afternoon of the 12th, but remained light until after nightfall. The initial snowfall in the mountains was less than 1 inch and even melted partially as the snow became too light to overcome the rate of melting. The snow began in earnest about 8 p.m. with 4 inches on the ground in most of the mountain areas by midnight.

By early Saturday morning, March 13th, evergreen branches had already begun to snap under the snow's weight. Thousands of homeowners started losing electrical power. As the snow continued to pile up, more trees fell causing even more power outages and blocked streets. By daybreak of the 13th, about 16.0" of snow had covered most valley regions of the mountains. At 8 a.m., the storm was centered northwest of Savannah, Georgia, and had a minimum central pressure of less than 28.70".

About 9 a.m., the winds shifted to the northwest and rapidly increased in speed in most mountain areas. The higher elevations had already experienced 70 mph wind gusts from the northeast prior' to daylight. The wind shift was also accompanied in most areas with the sound of thunder. Such an occurrence is certainly infrequent during snow events, but it is not unprecedented.

The winds in the valleys were welcome at first because they shook the snow off many tree limbs and power lines.

The snow continued falling as the winds increased in speed Saturday morning. By midday, the temperatures had fallen into the low to mid 20s with winds gusting to nearly 50 mph in the valleys and 75 mph in the higher elevations. "White out" conditions occurred frequently during the afternoon as the winds became even stronger. Barometric pressures fell to record low levels as the center of the low pressure moved through the eastern portion of the Carolinas. Many towns imposed martial law and states of emergency to help reduce unneeded traffic that would impede emergency or rescue operations.

The super storm had moved into southeastern Virginia by 3:00 p.m. on Saturday. Its march across the Carolinas had roughly followed the "fall line" (demarcation between the Coastal Plain and Piedmont). The path of the storm was fairly recognizable by the record low pressures it brought and the fact that snow amounts dropped off dramatically from the center of the storm eastward. The corrected sea level pressure bottomed out at a record setting 28.60" in Raleigh. Damaging winds were experienced on the coast as well as in the mountains. Many homes along the Outer Banks were destroyed or damaged. Cherry Point Marine Corp Air Station, Craven County, clocked a peak gust of 83 mph.

At 4:33 p.m. on the 13th, this writer and observer on Flat Top Mountain (elevation 4,320 feet) in Buncombe County, measured a wind gust of 101 mph from the northwest. This writer believes this figure was 4 to 6 mph too low due to a small accumulation of rime ice and snow on the wind sensor. The strongest recorded wind gust in the valley region was 64 mph at the Asheville Airport. The National Weather Service Office there also recorded a new record low pressure of 28.89". The old record was 28.93" set in January 1978.

Overnight, as the storm moved north and eastward, away from North Carolina, precipitation and winds began abating. Still, many could not rest as they now had to clear the roads of debris and snow, restore telecommunication systems, water and electrical service to thousands. Search and rescue missions for lost hikers in the Smokies were begun. Fortunately, all were found alive.

The sun was shining brightly by mid-afternoon on Sunday, March 14th. Many residents could now clearly see for the first time the magnitude of the storm's damage. It was obvious that it would take days, perhaps weeks, before life returned to normal. Tens of thousands of residents continued to be without power and other basic services. Weather observers, who still had phone service, called in their reports to the National Weather Service. Those reports revealed that the highest elevations had received the

most snow. Mt. LeConte, Tennessee, (elevation 6,493 feet) was buried under 60" of snow which tied Tennessee's record snow event of April 1987 when Newfound Gap, NC/TN also measured 60" of snow over a 4-day period. Mt. Mitchell, Yancey County, North Carolina, (elevation 6,240 feet) logged an impressive 50" of snow with drifts of 14 feet. Much further east, even Cape Hatteras and Wilmington recorded a trace of snow.

Monday morning (March 15th) was unseasonably cold across the eastern portion of the country and North Carolina was no exception. Clear skies, calm winds, and deep snow cover allowed for ideal radiational cooling. Some selected morning lows included -8°F at Waynesville, Haywood County, North Carolina, .(elevation 2,658 feet). The Asheville Airport was barely above zero at +2°F. This was a record low for the month of March. Raleigh shivered with a 14°F reading. Charlotte was only slightly warmer at 16°F and even Cape Hatteras was down to 25°F.

Bright sunshine began to modify the cold temperatures by midday of the 15th thus allowing residents to continue their clean up and digging out. Even making weather observations during and after the storm was difficult and involved some risk. One of my fellow employees at the Climatic Center (Greg Hammer) walked two and a half miles (one way) in deep snow to make the measurements at the downtown Asheville site. He even had to climb through 7-foot drifts on the 60-foot high roof of the Climatic Center. Thanks to Mr. Hammer's dedication and the many other cooperative observers across the area, we now have a record of the worst blizzard in the history of the mountains. Normally this writer makes the weather observations at both the Climatic Center and on Flat Top Mountain (Swannanoa 2 SSE), however only a rescue by a bulldozer allowed my return to the Center four days after the storm.

It took several months to assess the extensive damage inflicted by the storm. It had directly affected 26 states and the District of Columbia causing at least 270 fatalities. Insured losses exceeded $1.6 billion. This made it the most costly non-tropical storm and the fourth costliest storm on record for the United States. Nineteen deaths were attributed to the storm in North Carolina.

Grant Goodge and Greg Hammer

Grant Goodge
Gregory Hammer

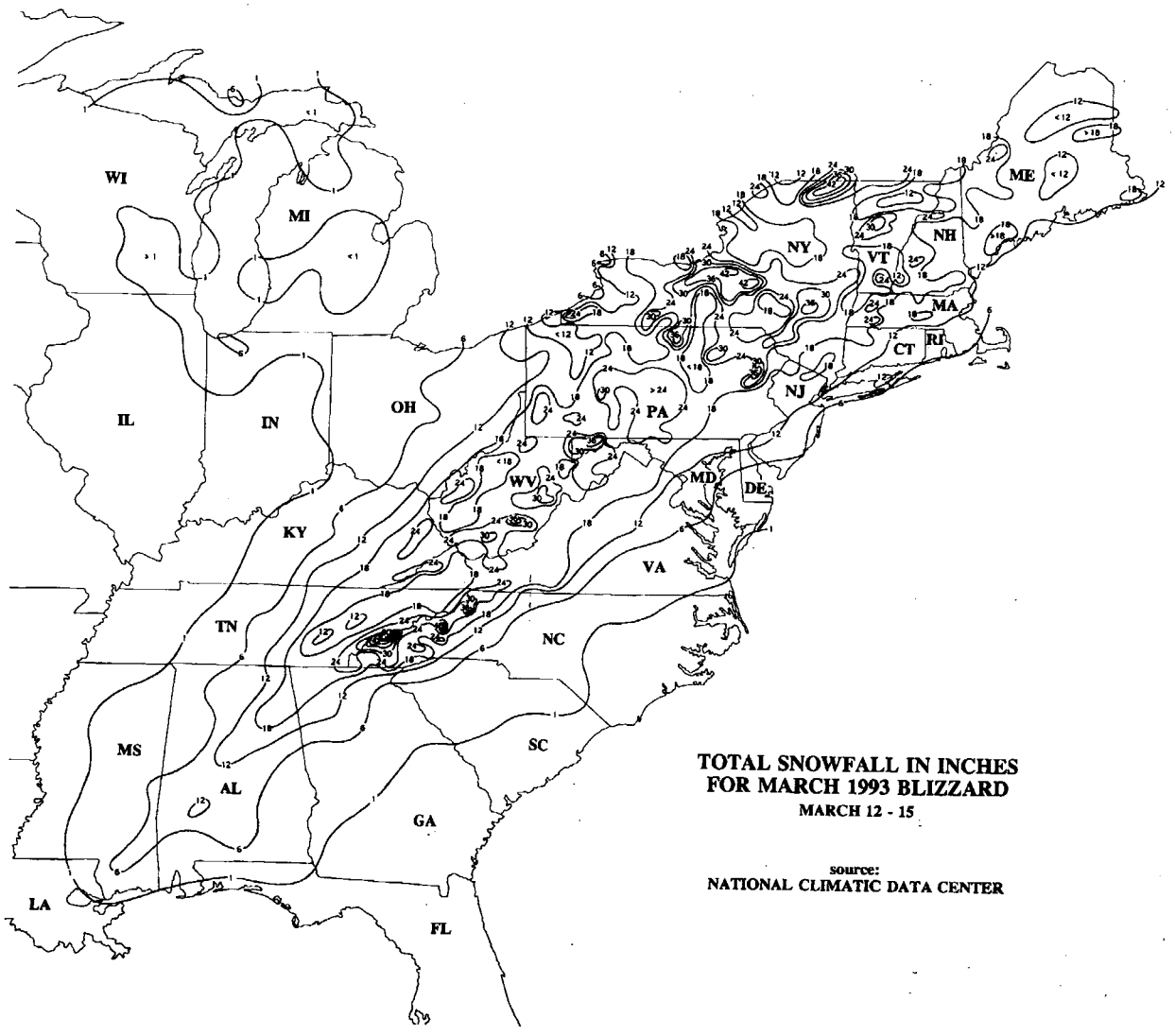
Drifted snow covering one of the windows of the weather observer's home on Flat Top Mountain (Swannanoa 2SSE). Monday March 15, 1993.

Snow piled up against the front of the Battery Park Apartments in downtown Asheville. Wednesday March 17, 1993.

Peak Wind Gust - March 1993

Station	Peak Gust (MPH)	Direction	Day(s)
Asheville NCDC	E 70	NW	13
Asheville NWSO	64	NW	13
Swannanoa 2 SSE	101	NW	13
Charlotte NWSO	44	SW	10
Greensboro NWSO	43	W	10
Raleigh NWSFO	52	W	13
Pope AFB	53	SW	13
Seymour-Johnson AFB	71	SW	13
Wilmington NWSO	70	S	13
New River MCAS	63	S	13
Cherry Point MCAS	83	SW	13
Cape Hatteras NWSO	63	SW	13

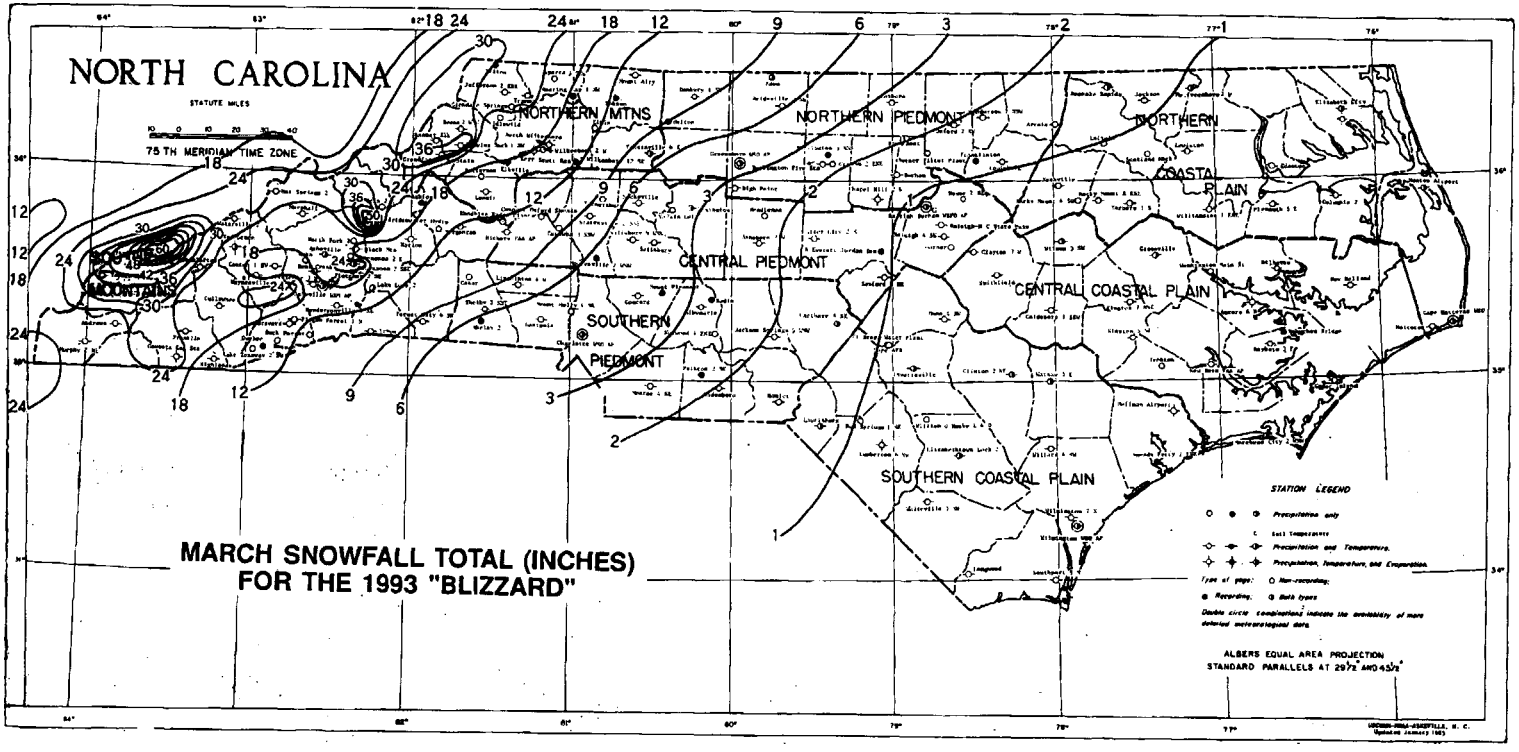
E = Estimated



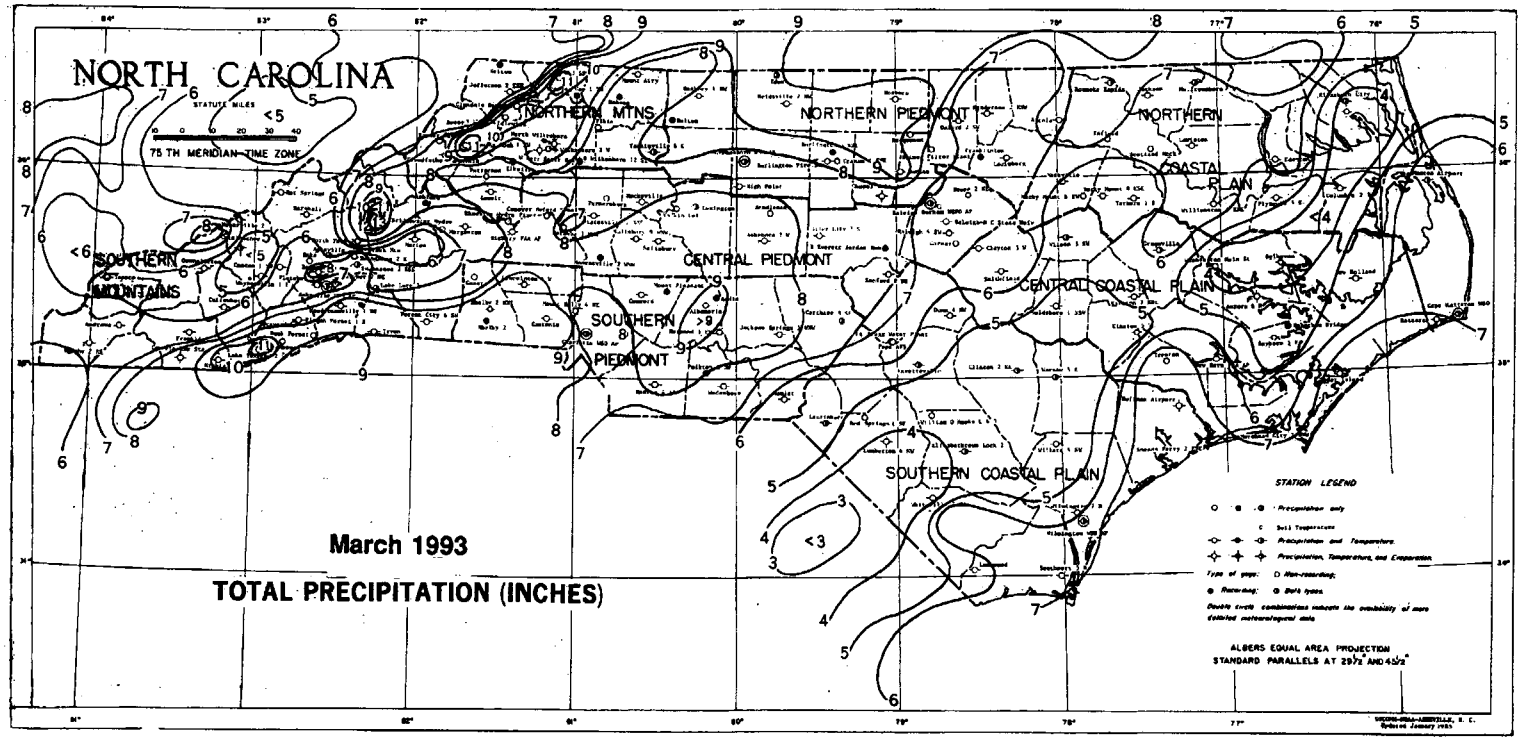
TOTAL SNOWFALL IN INCHES FOR MARCH 1993 BLIZZARD

MARCH 12 - 15

source:
NATIONAL CLIMATIC DATA CENTER



MARCH SNOWFALL TOTAL (INCHES) FOR THE 1993 "BLIZZARD"


NORTH CAROLINA
NORTHERN MTNS
NORTHERN PIEDMONT
NORTHERN COASTAL PLAIN
SOUTHERN MOUNTAINS
CENTRAL PIEDMONT
CENTRAL COASTAL PLAIN
SOUTHERN PIEDMONT
SOUTHERN COASTAL PLAIN
STATUTE MILES
75 TH MERIDIAN-TIME ZONE
STATION LEGEND
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS AT 29½° AND 45½°
March 1993
TOTAL PRECIPITATION (INCHES)